

**REMARKS**

Claims 1-42 are all the claims pending in the application.

**Information Disclosure Statement:**

Applicant thanks the Examiner for initialing and returning the Form PTO/SB/08 A & B filed on October 4, 2005, thus indicating that all of the references listed thereon have been considered.

**Election/Restriction:**

Claims 33 and 39 remain withdrawn from consideration.

**Claim Rejections:**

Claims 1-32, 34-38 and 40 are all of the claims that have been examined, and currently all of these claims stand rejected.

***35 U.S.C. § 102(b) Rejection - Claims 1-2, 14, 29-31, 34, 41 and 42:***

Claims 1-2, 14, 29-31, 34, 41 and 42 continue to stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,688,053 to Itoh et al. The grounds for rejection remain substantially the same as set forth in the previous Office Action. In view of the following discussion, Applicant respectfully traverses for the following reasons.

In maintaining the rejection, the Examiner stated that:

If the highest peaks are ignored and if flatness is the distance between two *virtual* planes, the flatness would be even less than [sic] 3 micrometers because peaks would be ignored.  
Office Action, page 8.

Further, the Examiner indicated that even if correct, the arguments set forth in the August 15, 2005 Amendment do not sufficiently “traverse” the Examiner’s rejection. Office Action, page 9.

Applicant continues to disagree, and respectfully requests the Examiner to reconsider the distinctions between “Ra” and “flatness.”

Stated simply, the “Ra” of a surface does not determine its “flatness”. In fact, if only given “Ra,” it would be impossible for a skilled artisan to determine the overall “flatness” of a surface (without additional information, such as the roughness curvature of the surface). Therefore, the reference to Ra in Itoh does not expressly or inherently disclose this aspect of the claimed invention, and for this reason Itoh does not anticipate the present claims.

This is explained more fully below.

Turning first to the Office Action, the Examiner considered that the “flatness” of a surface would be less in height than the Ra value of a surface, because the “peaks would be ignored.” However, this is incorrect.

As set forth in Applicant’s August 15, 2005 Amendment, “Ra” is an average distance from a virtual centerline (or mean line) of the surface to be measured. Because this characteristic is an “average,” it is (by nature) positioned at some point between the virtual surface and the maximum height of the peaks. Stated differently, the “average” distance between the centerline and the peaks can never reach as high as the highest peak.

On the other hand, the claimed “flatness” is the distance between two parallel virtual planes such that all of the long and short profile waves over the entire surface are between the

two virtual planes. The claim requires that these planes be  $3\text{ }\mu\text{m}$  apart, or less, such that the gap definition surface is positioned between the parallel planes (i.e., the entire surface).

For example, a surface having an  $R_a$  of  $3\text{ }\mu\text{m}$  could have a flatness of  $6\text{ }\mu\text{m}$ , or more, and without further information it is impossible to make this determination. In any event, unless a surface is utterly flat (i.e., no peaks or valleys at all) the “flatness” of a surface will be larger than the “ $R_a$ ” of the surface. Thus, the distance  $R_a$  is considerably different than the “flatness” of a surface.

This will now be explained in more detail with reference to Japanese Industrial Standard JIS B 0601, *Surface Roughness - Definitions and designation*. (A copy of JIS B 0601 was submitted with Applicant’s August 15, 2005 Amendment.)

As shown in Figures 1a through 1c (on page 4) a surface has a roughness curve (see definition (3) on page 2), and a “mean line of roughness curve” (definition (8) on page 2). As shown, the “mean line” is a line made by converting the waviness of the filtered wave in the sampled portion (reference length  $l$ ) of the profile curve to a straight line.

This “mean line” is then used to determine the  $R_a$  of a surface, which is explained on page 5 of JIS B 0601. As shown in Figure 2, the “ $R_a$ ” can be “simply” characterized as an average distance from a virtual centerline of the surface. More particularly, in the calculation of  $R_a$ , any surface waviness component other than a prescribed wavelength has been cut off from the profile curve by means of a phase compensation type high-pass filter. The calculation uses the equation:

$$Ra = \frac{1}{l} \int_0^l |f(x)| dx$$

This can be seen in Figure 2 and Section 3.1.1, of the JIS B 0601 standard.

When using the above equation, the Ra, which is some distance above the “mean line,” is determined to represent the surface. Thus, as shown in this Figure 2, and explained in the previous Amendment, the value of Ra ignores (or cuts off) the maximum and minimum peaks of the surface. Stated differently, in defining Ra, Itoh simply discusses and discloses the roughness of short surface profile waves on a cut end of the surface, but does not take into account the long and short waves of the surface profile over the entire surface.

Further, Applicant clarifies that the roughness curve [f(x)] does take into account the maximum and minimum peaks over the distance *l* when calculating the value of Ra, but does not take into account the long and short waves of the surface profile over the entire surface.

Further, as clearly shown in Figure 2, the value of Ra is a line which is at a position below the maximum peaks of the roughness curve. Thus, by cutting off these peaks, the calculation of Ra is not from the mean line to a peak, but rather is calculated as noted above.

Therefore, it is well understood (and clearly shown in Figure 2) that “Ra” is less than the “flatness” of a particular surface, where the “flatness” is the maximum distance between two parallel lines which are parallel to the centerline of the surface, such that in determining the “flatness” the longer waves (neglected by Ra) are just what is to be measured when determining flatness.

Stated differently, the average smoothness of a surface (i.e., Ra) will always be much less than the maximum height of the surface. This is because when determining the “Ra” of the profile curve of the surface, the maximum peaks of the profile curve are ignored, and are not used in the determination. Thus, it is well understood that the “Ra” of a surface will be considerably less than the “flatness” of a surface.

For example, a surface may have an Ra of 2  $\mu\text{m}$  and a flatness of 10  $\mu\text{m}$ , or an Ra of 1  $\mu\text{m}$  and a flatness of 15  $\mu\text{m}$ . Without knowing the roughness curve for a particular surface, there is no way to determine the flatness of a surface when only the Ra is known, as there can be a large number of roughness curves which can produce the same Ra, each of which has a very different flatness value.

Consequently, just because the “Ra” of a surface is known, this in no way determines the “flatness” of a surface.

As clearly seen in Figure 2 of JIS B 0601, if the Ra shown is 3  $\mu\text{m}$ , the overall flatness is greater than 3  $\mu\text{m}$ . If the Ra shown is 2  $\mu\text{m}$ , then without knowing the function  $f(x)$  (roughness curve), there is no way to determine the flatness, but assuming Figure 2 to be to scale, it is again clear that the flatness will be over 3  $\mu\text{m}$ .

Therefore, because Itoh only discloses the surface Ra, and does not disclose a function of a roughness curve, Itoh fails to expressly or inherently disclose the overall “flatness” of a surface.

More particularly, just because Itoh discloses Ra, does not mean that Itoh discloses what is the maximum acceptable flatness of the surface (i.e., the maximum of both long and short

profile waves over the entire surface), and thus there is no disclosure regarding this claimed feature.

In fact, even if Itoh were to disclose an Ra of 0 (i.e., “0.3 or less”), this provides no disclosure regarding the flatness value. One can not determine the “flatness” of a surface by knowing only the “Ra” of a surface.

As such, Applicant submits that none of the elements (i), (ii), or (iii) (in claim 1) are disclosed in Itoh. There are at least two reasons for this:

1. “Ra” is calculated over a set distance “*l*” of a surface (ignoring surface roughness outside the distance “*l*”, whereas “flatness” is for the entire surface; and
2. One can not determine the flatness of a surface when only the Ra is known, as the value “Ra” (essentially an average) will always be less than the distance between the maximum and minimum peak(s).

With regard to elements (iv) and (v) Itoh also fails to disclose either of these aspects of the claimed invention, as acknowledged in the Office Action.

Claim Feature (vi):

Additionally and independently, the Examiner alleged that the “figures of Itoh are a part of the disclosure and the figures, at the very least, certainly show the claimed clearance.”

Applicant respectfully disagrees.

As an initial matter, Figure 6 (of Itoh) is the only Figure which discloses any actual dimensions, and these dimensions are for the depth of the gap in the thrust plate 103. There is no disclosure, whatsoever, in these figures regarding the gap distance between the plate 103 and the

rotor 107. Further, Applicant has found no such disclosure in the specification regarding this dimension. Therefore, Itoh also fails to disclose this aspect of the claimed invention

Second, Applicant notes that the Examiner can only rely on the Figures for what they reasonably teach to one of ordinary skill. However, because there is no description in the specification as to dimensions, it is therefore improper for the Examiner to simply rely on the subject figures to allege that the claimed range is disclosed. Thus, again, Itoh fails to disclose this aspect of the claimed invention.<sup>1</sup>

In view of the foregoing, Applicant submits that Itoh fails to disclose each and every element of the claimed invention, in particular the claimed clearance between outermost circumferential portions of a second member and a thrust plate. Therefore, Itoh fails to anticipate the claimed invention, as required under the provisions of 35 U.S.C. § 102(b). Accordingly, Applicant hereby requests the Examiner reconsider and withdraw the 35 U.S.C. § 102(b) rejection of the above claims.

***35 U.S.C. § 103(a) Rejection - Claims 3-13:***

Claims 3-13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Itoh in view of NIST Property Data Summaries. However, because these claims depend on claim 1, and because the NIST data summaries fail to address any of the deficiencies of the Itoh reference, Applicant submits that these claims are also allowable, at least by reason of their dependence.

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<sup>1</sup> When the reference does not disclose that the drawings are to scale and is silent as to dimensions, arguments based on measurement of the drawing feature are of little value. MPEP § 2125.

Moreover, NIST simply discloses a ceramic material, and says nothing about the relationship between hardness of the thrust plate surface and that of the second member.

***35 U.S.C. § 103(a) Rejection - Claims 15, 16, 28, 32, 35-38 and 40:<sup>2</sup>***

Claims 15, 16, 28, 32, 35-38 and 40 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Itoh, in view of the previously applied Jabbar reference. Applicant respectfully traverses for the following reasons.

As an initial matter, Applicant submits that these claims are allowable for the same or similar reasons as those set forth above regarding the Itoh reference, and claim 1. Specifically, Applicant submits that Jabbar fails to cure the deficient teachings of Itoh, and as such, the above claims are also allowable.

Additionally and independently, contrary to the Examiner's assertion, Jabbar fails to disclose the claimed "crowned" aspect of the present invention. The mere fact that Jabbar discloses an angled surface (Figures 6C and 6D) is insufficient to describe the specific limitations set forth in the claims. Namely, under the Examiner's reasoning, Jabbar could equally disclose an inner circumferential portion of the sleeve 42 projecting by an amount greater than 5  $\mu\text{m}$  with respect to an outermost circumferential portion of the sleeve 42. Thus, the Examiner's assertion of obviousness is improper, because the claimed limitations are not present in Jabbar.

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<sup>2</sup> Although the Examiner included claim 39 in this rejection, as set forth in the Office Action, Applicant believes this to be a typographical error as claim 39 has been withdrawn, and will proceed under this presumption.



Further, Jabbar only discloses that “laterally extending axial surface 103 of base 43 and laterally extending axial surface 105 of the base 44 each make an angle of approximately 60 to 80 degrees with respect to the vertical axis of motor shaft.” Jabbar, col. 7, lines 7-10. However, without more, such as physical dimensions of the surfaces, this information is insufficient to teach or suggest each and every feature of the claimed invention. As such, the above cited combination fails to render the claimed invention obvious.

Moreover, with regard to claims 32 and 38, the rejection lacks merit. Although Jabbar appears to disclose a crowned shape, there is no disclosure, whatsoever, regarding the claimed dimensions.

In view of the foregoing, Applicant submits that (1) it would not have been obvious to combine Itoh and Jabbar, as suggested by the Examiner, and (2) even if the references were combined the resultant combination would fail to teach or suggest each and every feature of the claimed invention. Therefore, the Examiner has failed to establish a *prima facie* case of obviousness, as required under 35 U.S.C. § 103(a). Accordingly, Applicant hereby requests the Examiner reconsider and withdraw the above 35 U.S.C. § 103(a) rejection of the above claims.

RESPONSE UNDER 37 C.F.R. §1.116  
Application Number: 10/090,267

Our Ref: Q68736  
Art Unit: 2652

***35 U.S.C. § 103(a) Rejection - Claims 17-27:***

Claims 17-27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Itoh in view of Jabbar, in further view of NIST Property Data Summaries. However, because these claims depend on claim 15, and because the NIST data summaries fail to address any of the deficiencies of the Itoh or Jabbar references, Applicant submits that these claims are also allowable, at least by reason of their dependence.

**Conclusion:**

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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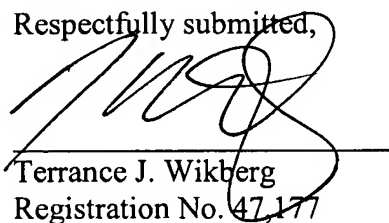
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